

ABSTRACT

The present invention is drawn to new classes of advanced neutron absorbing structural materials for use in spent nuclear fuel applications requiring structural strength, weldability, and long term corrosion resistance. Particularly, an austenitic stainless steel alloy containing gadolinium and less than 5% of a ferrite content is disclosed. Additionally, a nickel-based alloy containing gadolinium and greater than 50% nickel is also disclosed.